



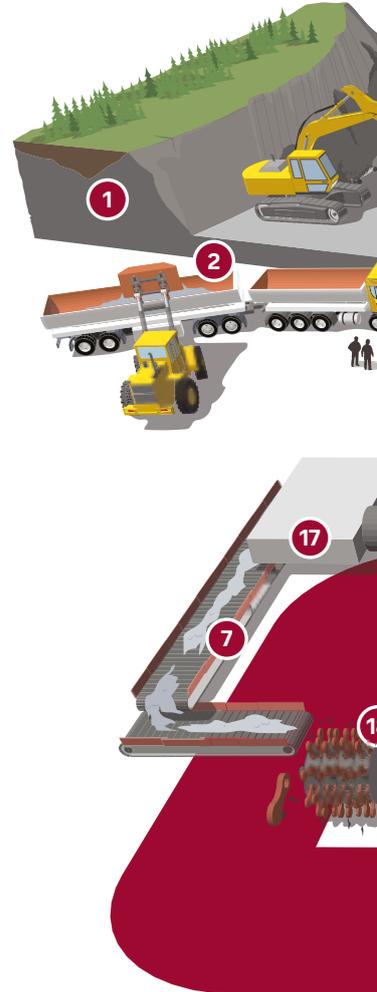
Hardox<sup>®</sup> wear plate in

# Cement production

**HARDOX<sup>®</sup>**  
WEAR PLATE

# What is your wear challenge?

From the limestone quarry to loading and transporting the final product, Hardox® wear plate is the ultimate solution for cement production. This premium wear steel offers exceptional hardness, strength and durability to withstand excavating, crushing, screening, and grinding the stone. Cement producers can count on Hardox® wear plate to provide long-lasting performance, increased productivity, and reduced maintenance costs.



## Sustainability in action

The environmental footprint from the cement production chain can be reduced by using Hardox® steel. The hardness and toughness of Hardox® allow for thinner dimensions and lighter yet highly durable equipment which saves fuel and increases productivity.



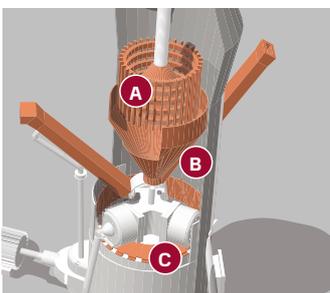
### Jaw crushers

For the cheek plates in a jaw crusher Hardox® 500, Hardox® 550 and Hardox® 600 are all suitable to battle the wear and impact loads generated by crushing limestone.



### Guide plates

Hardox® 500 is a common choice for guide plates in the clinker cooling bed.



### Vertical raw mill

Hardox® 450 and Hardox® 500 Tuf protect against wear of the guide vanes, frame, deflection plates and air separator (A). Hardox® 600 is used as liner plates in the cone (B) and in the grinding table (C).

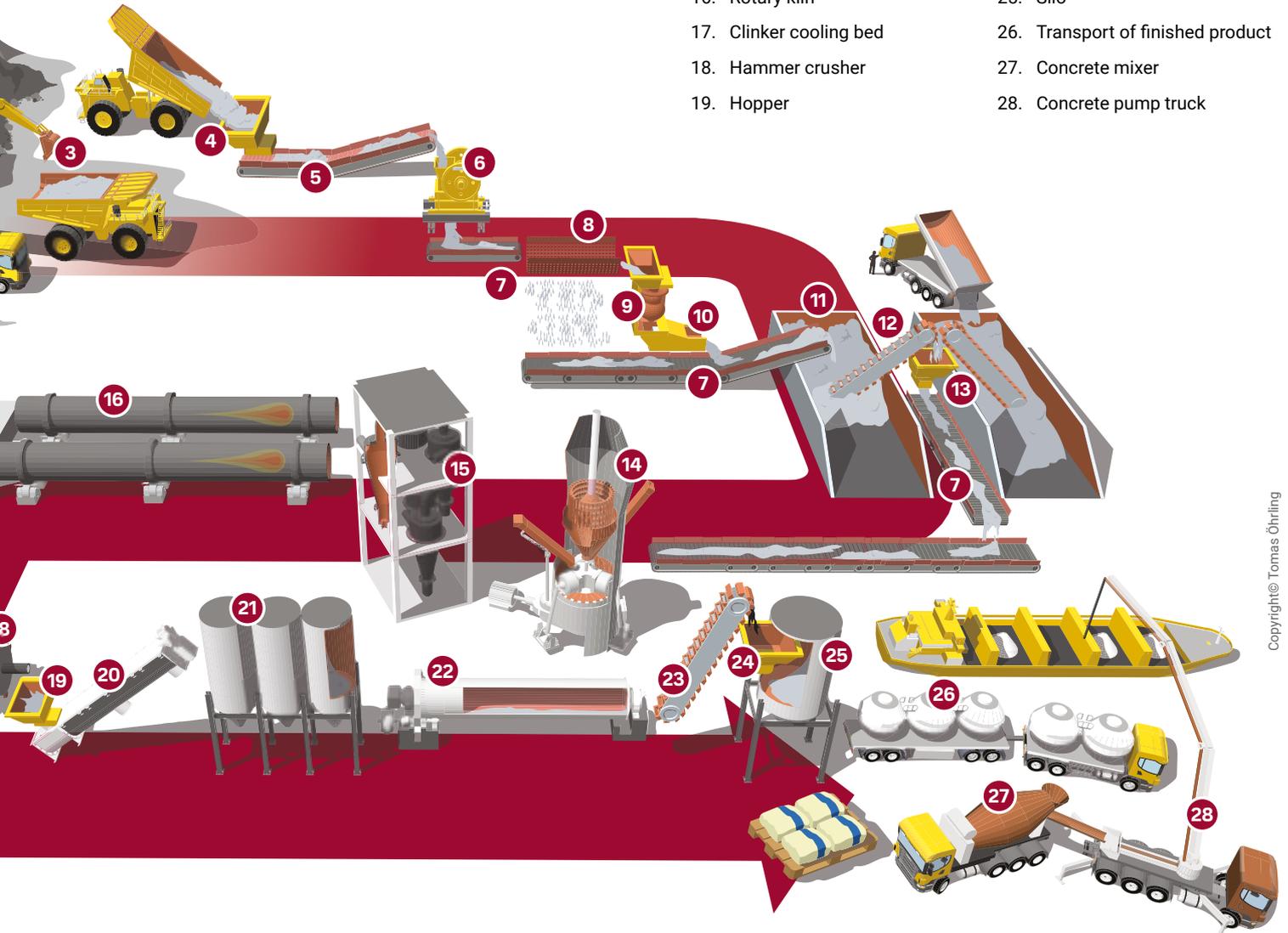


### Concrete mixer drum

Hardox® 450 and Hardox® 500 Tuf in the drum shell, spirals, chutes and hopper of a concrete mixer truck are perfect choices for a durable and lightweight solution.

## Cement production flow

1. Open pit
2. Loader and tipper
3. Excavator and dump truck
4. Hopper
5. Conveyor belt
6. Jaw crusher
7. Conveyor belt skirt plates
8. Crusher screen
9. Cone crusher
10. Chute
11. Storage bins
12. Elevator buckets
13. Hopper
14. Raw mill
15. Preheating in cyclones
16. Rotary kiln
17. Clinker cooling bed
18. Hammer crusher
19. Hopper
20. Screw conveyor
21. Silos
22. Ball mill
23. Bucket elevator
24. Hopper
25. Silo
26. Transport of finished product
27. Concrete mixer
28. Concrete pump truck



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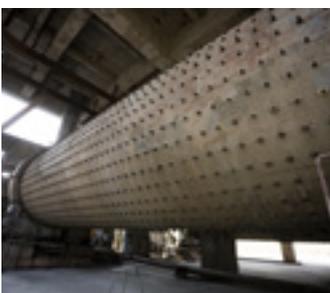
### Liner plates

Hardox® 500, Hardox® 550 and Hardox® 600 are versatile grades for liner plates in all types of mills, chutes, hoppers, crushers, silos, and other applications in the cement production chain.



### Hammer crushers

Hammers in Hardox® 500, Hardox® 550 or Hardox® 600 are used for crushing limestone and clinker. The high toughness of Hardox® steel provides high resistance against cracking.



### Ball mills

Hardox® 500, Hardox® 550 and Hardox® 600 are the recommended materials for wear protection at the inlet and outlet in ball mills. Lifter bars benefit from using Hardox® 500.



### Screens

Screens are used for sorting material. Hardox® 450 or Hardox® 500 Tuf are recommended grades. For extremely abrasive environments, screens can also be made of Hardox® 550 or Hardox® 600.

## Wear: The inside story

Your choice of wear plate has consequences for your business. Hardox® wear plate maximizes the wear performance of your equipment and machines, reduces workshop lead times and increases the overall productivity of your operations.

Thanks to the consistent properties of Hardox® steel, you can always rely on its high performance. It also gives you a highly predictable service life, allowing you to optimize your maintenance planning.

With its combination of high hardness, high strength, and toughness, Hardox® steel can be used in a variety of applications.

What's the secret behind Hardox® wear plate? It starts early in production with state-of-the-art steelmaking and a unique hardening and quenching process, resulting in wear plates with outstanding hardness, toughness, and workshop friendliness.

### Support at your service

In addition to our steel products, SSAB provides you with technical support from SSAB Tech Support and SSAB Knowledge Service Center. Our technical support can help with everything from optimizing your product design to hands-on workshop issues. Our technical development managers and material specialists have decades of experience in solving wear challenges.

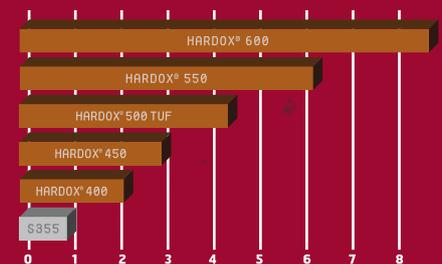
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[hardox.com](http://hardox.com)

### Service life

Choosing the most suitable Hardox® grade for your application can have a great effect on the service life of your equipment. The table shows the relative service life of some Hardox® grades, with mild steel as a reference.\*



\* The calculations are based on sliding wear with limestone.

### Hardox® WearCalc

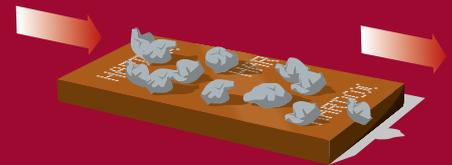
Hardox® WearCalc app is a powerful prediction tool that calculates wear and helps you optimize your choice of Hardox® wear plate. Visit [hardox.com](http://hardox.com) to download.

### Different types of wear

Wear comes in different forms, and each has a different impact on the service life of your application. The most common wear types are sliding wear and impact wear. Each type of rock is composed of a unique combination of minerals which contribute to the specific type of abrasive wear damage.

### Sliding wear

Hardox® steel has great resistance to sliding wear since it's difficult for abrasive materials to cut into the steel's hard surface.



### Impact wear

Hardox® is a wear steel with high toughness, which makes it stand up to impact from rocks and other heavy objects striking the steel.

